

CULEX LOEWI GIEBEL, 1862 (INSECTA: DIPTERA: CULICIDAE): REQUEST FOR SUPPRESSION UNDER THE PLENARY POWERS SO AS TO CONSERVE *TOXORHYNCHITES BREVIPALPIS* THEOBALD, 1901 (OFFICIAL LIST OF GENERIC NAMES No., 1341; OFFICIAL LIST OF SPECIFIC NAMES, NO. 1615). Z.N.(S.) 2173.

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Opinion 548 of the International Commission on Zoological Nomenclature (*Opin. Decl. int. Commn zool. Nom.*, vol. 20: 167-173) ruled in 1959 that the name *Toxorhynchites* Theobald, July 1901, is valid and that *T. brevipalpis* Theobald, November 1901, is the type-species of that genus, by subsequent monotypy. The name *Toxorhynchites* Howard, June 1901, ex Theobald MS, was suppressed simultaneously under the plenary powers for purposes both of the Law of Priority and of the Law of Homonymy.

2. At present the genus *Toxorhynchites* Theobald is generally regarded as forming a monobasic subfamily of the CULICIDAE, for which the name TOXORHYNCHITINAE Theobald, 1905: 5, has priority. As type-species of the nominate subgenus of *Toxorhynchites*, *T. brevipalpis* is pivotal to the definition of the whole subfamily TOXORHYNCHITINAE. Most workers divide the genus *Toxorhynchites* into three subgenera: *Ankylorhynchus* Lutz, 1904, and *Lynchiella* Lahille, 1904, in the New World and *Toxorhynchites* sensu stricto in the Old World. A minority of authors follow Lima, Guiton & Ferreira, 1962, in maintaining generic rank for each of these three groups. Latest summaries of information on the TOXORHYNCHITINAE are the biosystematical review by Steffan (1975) and relevant entries in the revised edition of "A synoptic catalog of mosquitoes of the world" by Knight & Stone (in press).

3. *T. brevipalpis* is an ornate, conspicuous but non-biting mosquito species with a natural range covering most of the Ethiopian faunal region. The holotype female is deposited in the Department of Entomology, British Museum (Natural History), London, U.K. Since the work of Edwards (1941) it has been accepted that the nominate form of *brevipalpis* inhabits eastern and southern Africa, Zanzibar and Malagasy, while subspecies *conradti* Grünberg, 1907, has darker adults and occupies western and central Africa. One or other subspecies of *T. brevipalpis* has been reported from at least 29 of the 38 mainland countries in the Ethiopian region.

4. The carnivorous behaviour of *Toxorhynchites* larvae has repeatedly attracted the interest of applied entomologists seeking agents of biological control. In this capacity *T. brevipalpis*, which breeds in flooded tree-holes, motor-car tyres and so forth, is regarded as an important predator of certain medically important mosquito species in the genus *Aedes* Meigen, 1818. For

this reason, the bionomics of *T. brevipalpis* have been investigated by Bonnet & Hu (1951), Muspratt (1951), Corbet (1963), Corbet & Griffiths (1963), Correia (1967), Sempala & Ssenkubuge (1971), Trpis (1972, 1973a, b) and Trpis & Gerberg (1973). As an extension of this biological control interest, strains of *T. brevipalpis* have been introduced to Hawaii (Bonnet & Hu, 1951; Nakagawa, 1963), to American Samoa (Peterson, 1956) to Tahiti (Bonnet & Chapman, 1956) and to Sint Maartens in the Leeward Islands (Gerberg, *in lit.*, 4. iv. 1976). With a view to its further exploitation for larval control of vectorially active species of mosquitoes, *T. brevipalpis* is currently under colonisation in several African and American laboratories. Considerable literature dealing with the experimental study of this species has consequently been added to the primary and secondary taxonomic publications in which *T. brevipalpis* has been described, redescribed and its distribution recorded in great detail. In all, *T. brevipalpis* is documented in over 100 books, papers and other reports.

5. Hennig (1966: 5) published a determination by Mattingly (*in litt.* 16. xii. 1965) that *Culex loewi* Giebel, 1862, belongs to the *T. brevipalpis* species group. In Mattingly's view the female holotype of *loewi* appeared to belong to one or other of the subspecies known as *brevipalpis* and *conradti*. I have also now examined this specimen, No. 4179, in the Naturwissenschaftlichen Museum der Coburger Landesstiftung in Coburg. It was kindly made available to me by the Director through the courtesy of Professor Dr. Willi Hennig, and in my opinion, despite the relatively denuded scale patterns, there can be little doubt that it is marked as in *brevipalpis* and not like *conradti*, the pale scaling of the second fore tarsomere being particularly diagnostic when seen from below. This implies that *loewi* Giebel, 1862, should be regarded as a senior subjective synonym of *Toxorhynchites brevipalpis* Theobald, 1901. However, in view of the way that Article 23 (a-b) of the Code was redrafted in 1972 at the 17th International Congress of Zoology held at Monaco, it seems desirable to request the Commission to use its plenary powers to promote nomenclatural stability by upholding validity of the much used junior synonym in this case.

6. *Culex loewi* was originally described and named on the supposition of it being a fossil embedded in amber of unknown origin. Other specimens in the same collection and also described in the same paper were a Gekko and 16 species in 6 Orders of Insecta. Klebs (1910) later realised that this collection consisted of material not in fossil amber but in modern copal. On the strength of Klebs's opinion, Edwards (1932) listed *Culex loewi* in Fascicle 194 of the "Genera Insectorum" as being "Quaternary [?? = *Aedes fulgens* Edw.]. Gum Copal (? E. Africa)". Evidently Edwards had not seen the specimen which so obviously resembles *T. brevipalpis*, so he guessed at its age, identity and origin. Similarly, in the first edition of "A synoptic catalog of the mosquitoes of the world" (Stone et al, 1959: 286) the entry for *C. loewi* indicates "Quaternary (Gum Copal. Type-locality: ? East Africa". Following the publication of

Hennig's (1966) review of Giebel's copals, Stone (1967: 218) emended the World Catalog entry to "*Toxorhynchites loewi* (Giebel)" but left the species listed as a Quaternary fossil form. The literature appears to lack any further usages of this name *loewi*.

7. Several authors have attested to the modernity of Giebel's copals and the specimens therein. Giebel's names therefore stand as available for contemporary taxa. One of these names has already been accorded priority. Crosskey (1966) synonymised *Tachina succini* Giebel, on which the genus *Palexorista* Townsend had been founded, with *Prosturmia solennis* (Walker, 1859), so sinking *Prosturmia* Townsend, 1927, under *Palexorista* Townsend, 1921 (Insecta: Diptera: TACHINIDAE). In another case, Wermuth (1966) identified *Platydactylus minutus* Giebel, 1862, as most probably being a specimen of *Hemiphyllocladus typus* Bleeker, 1860 (Reptilia: Sauria: GEKKONIDAE); in this case Giebel's name did not take priority. Both Crosskey (1966) and Wermuth (1966) apparently were influenced by Klebs's suggestion that at least some of the copals in the Coburg collection may have been of Oriental origin. In fact Klebs (1910) tentatively identified Giebel's Gekko as an Oriental species. On the other hand, Edwards (1932), with characteristic serendipity, had suggested East Africa as the probable source at least of *C. loewi*, although he guessed its identity wrongly. Hennig (1966) identified nine of Giebel's insect taxa and reported them all to be definitely or possibly African in origin. For two specimens belonging to taxa that could have originated from either the Ethiopian or the Oriental regions Hennig (*in lit.*, 21.vi.1968) was able subsequently to furnish the results of spectroscopic analysis of the copals performed at the University of California, Santa Cruz, by Dr. Jean H. Langenheim (*in lit.*, 16.v.1968): "it is clear that the samples of copal containing *Lomatia* and *Tachina* ... are from a leguminous source. In fact, the resin probably is from a species of *Trachylobium* which occurs in East Africa ... It is somewhat similar to *Copaifera* which produces the West African copals. However, resin from *Trachylobium* appears more similar than those from *Copaifera*". In the light of this technical information, there can be no doubt as to the correct synonymy of *C. loewi* Giebel with the common African mosquito that has always been known as *Toxorhynchites brevipalpis* Theobald.

8. For the above reasons and in the interest of nomenclatural stability the International Commission on Zoological Nomenclature is asked:

- (1) to exercise its plenary powers to suppress the specific name *loewi* Giebel, 1862, as published in the combination *Culex loewi*, for the purposes of the Law of Priority but not for the purposes of the Law of Homonymy.
- (2) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the specific name *loewi* Giebel, 1862, as published in the binomen *Culex loewi* and as suppressed under the plenary powers in (1) above.

9. This case would have been impossible to formulate without the generous access to personal correspondence allowed me by Dr. R.W. Crosskey, Prof. Dr. W. Hennig and Dr. P.F. Mattingly. Their assistance and the spectroscopic information on copals supplied by Dr. J.H. Langenheim of California is gratefully acknowledged.

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